HARPER'S COMPASS POINTS NORTH

The Prime Minister announces the Government's commitment to the International Polar Year (IPY)

THE BIRDFISH

FALL 2007

Churchill Northern Studies Centre Newsletter

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"..use it or lose it is the first principle of sovereignty." - STEPHEN HARPER

Harper's Compass Points North

by Michael Goodyear

On Friday October 5, Prime Minister Stephen Harper visited the Churchill Northern Studies Centre to announce the final 26 projects selected by the Government of Canada as part of their $150 million commitment to the International Polar Year (IPY). IPY is a major international effort to better understand Earth's polar regions and runs from 2007 to 2009. The CNSC is helping to facilitate six projects under the Federal IPY program ranging from the effects of a warming climate on polar bears and other marine mammals, to tracking mercury and ozone accumulation in the atmosphere. Harper also announced a joint provincial, federal, and private sector initiative of $60 million for desperately needed upgrades to the Hudson Bay Railway and an additional $8 million in improvements to the Port of Churchill.

The Prime Minister was accompanied by Gary Doer, Premier of Manitoba, Chuck Strahl, Minister of Indian and Northern Affairs, Vic Toews, President of Treasury Board, and Pat Broe whose company owns both the Port of Churchill and the Hudson Bay Railway. Harper's 24-hour visit to Churchill was the first by a sitting Prime Minister since Pierre Elliott Trudeau visited briefly in the 1970's. The CNSC's back or "large" lab was converted into a temporary media centre complete with backdrops, audio-visual equipment, and teleprompters. Following the announcement, the PM took some time to meet with the fifty local guests in attendance, including staff, elders and other friends of the CNSC. The Prime Minister's party then departed by helicopter for a quick helitour and a close-up encounter with a polar bear in the Churchill Wildlife Management Area.

The announcements made in Churchill set the stage for an even greater focus on the North in the October 16th throne speech. In it, Harper evoked the words of D'Arcy McGee, an early Father of Confederation, in outlining several additional northern initiatives including intensive mapping of the seafloor, a continued bolstering of Canada's military presence in the Arctic, and the creation of a world-class Arctic research station. While the location of this new Arctic research station has not yet been determined, many long time readers of the Birdfish have expressed hope that these plans will also involve significant enhancements to existing research networks like Churchill. In any case, a continued emphasis on Arctic sovereignty, shipping and resource development does bode well for increased spending on northern infrastructure, including that used for science and education. As the Prime Minister said, "..use it or lose it is the first principle of sovereignty." Outside of the Canadian Rangers, the many far flung scientific expeditions at work each year across the high Arctic represent the single largest human presence in the far North. If one defines sovereignty as feet on the ground, then the Canadian Rangers, scientific researchers, and the northern communities that support them are truly planting the Canadian flag.

A Fantastic Journey:

The Story of the Worm Return

By Carley Basler

As far as worms go, I'm pretty sure the red wriggler vermi-composting worms of the CNSC are some of the most traveled worms in all of the world, especially considering that they live their lives in a Rubbermaid™ bin.

The very first pound of worms arrived in Churchill in the spring of 2004 by airplane and were driven out to the Studies Centre in one of our trusty fleet vehicles. After spending the summer eating the kitchen compost from the CNSC cafeteria, the worms traveled by truck to my cabin at Spruce Ridge at the beginning of September. By that time the worms had doubled and were divided into two new bins.

By Christmas time, it struck me that the poor worms weren't doing that well living at my place because my cabin wasn't always the warmest during the day while I was at work. It sometimes got as low as minus 10 C°. So I packed up the little guys into a sleeping bag and then into a giant duffle bag and took them on a short snowmobile ride to a friend's house where they would be warm for the winter. I would like to believe that this is the first time ever that worms have gone snowmobiling, though I'm unsure of how to verify that fact.

I visited them throughout the winter and continued feeding them my own personal kitchen compost and the compost of their "foster family". I also grabbed up handfuls of worms from time to time and gave them away to people in the community of Churchill who were interested by my stories of successful vermi-composting. A worm kit was donated as a prize for the Town of Churchill's Earth Day Activities. I never did keep track of how many people adopted some of the worms, but I would guess that close to a dozen households around here now use worms to eat their garbage.

By Spring of 2005 I had solved all of my problems of keeping my cabin warm, so the worms returned to my place. Since I was not employed at the CNSC during 2005, I divided the worms into a third bin to give back to the CNSC so they could showcase them once again at the Centre. The CNSC worms lived a double life; alternating between an apartment in town and the CNSC from Spring of 2005 to Summer of 2006, at which time the CNSC asked me if I would like to watch over them again. I took that container of worms back to Spruce Ridge and added them to my three containers (I had to divide mine again), making a total of four bins weighing in at close to 50 lbs of worms!

In October 2006, I was hired as the full-time Research Technician at the CNSC and thought it would be very fitting if all of the worms (those still in my possession) return to the Studies Centre along with me, as this is where we all became acquainted in the first place. I continue to feed them compost from the cafeteria here and bring in my own personal compost from home. We have now divided the worms amongst 5 containers. Even most of the full-time staff has red wigglers of their own at home! This winter we will undergo a massive compost harvest to make use of the natural organic fertilizer that the worms are making.

• Carley is the full-time CNSC Research Technician and you read correctly, she has worms. She gave us worms. If you want, she can give you worms, too.

featuredcourse

WINTER SKIES
Aurora and Astronomy

March 1 – 6, 2008
$ 935 CDN
Instructor: Chris Brown
Participants: 16

Churchill, Manitoba is one of the best spots on Earth to view the *Aurora borealis*, the spectacular atmospheric phenomenon better known as the Northern Lights. For more than 240 years, astronomers and physicists have journeyed to Churchill, situated directly beneath the aurora oval, to probe the upper atmosphere with cameras, balloons, and even rockets. Now you can learn more about this stunning lightshow, from traditional folklore to the latest scientific findings. View the aurora from the comfort of our heated viewing dome by night and explore the Churchill area by day. Local tours, cultural presentations and an afternoon of dog mushing offer a taste of life in the subarctic. The Churchill Northern Studies Centre, your home for five days, sits in the shadow of massive 1950's era rocket launch towers. As the lights arc overhead in curtains of white, green and red, you'll swear you can hear the countdown.

CONTACT HEATHER MACLEOD at **cnsc@churchillscience.ca** to book your learning adventure today!

Note: This program is also offered in partnership with Elderhostel February 2 – 7 and February 7-12, 2008.
Visit **www.elderhostel.org** and follow the Canada and Manitoba links for more details.

Adventures in Geocaching

by Stan Ritz

The Churchill Northern Studies Centre has entered into the growing sport of geocaching with the help of students from Churchill's Duke of Marlborough School. The Grade 6 class was given a presentation by experienced geocachers Stan and Lynn Ritz, and then established its first geocache named *"RustyBear"*.

Geocaching is when an organization or individual hides a cache, defined as a store of goods or valuables concealed in a hiding place. When the cache is hidden, the owner will record the GPS location and then enter the coordinates on the official geocaching website www.geocaching.com. A finder will then enter the coordinates into their GPS unit and set off to find the cache. The cache can be as small as a film canister or as large as a trash can. When the cache is found, the finder will sign a log contained in the cache then note their find on the website. Caches usually contain small trinkets like stickers, figurines or pencils.

Caches have been hidden all over the world. There are over 350,000 caches wordwide in over 220 countries, including three in the Churchill area.

Once you have the geocaching bug, the more treasures you are likely to find. Some geocachers, who have had the hobby for several years, have found over 3,000 caches. Geocachers can spice up a long road trip or business trip by stopping off at locations en route to search for caches.

Photo: Stan Ritz

For more information on Geocaching check out **www.geocaching.com**

Stan and Lynn Ritz volunteered at the CNSC this summer. They are among the few geocachers in the world whose hidden caches come with polar bear safety warnings.

CONTEST

MYSTERY**PHOTO**

Okay, it seems we made our first mystery photo a bit too difficult. Birdfish was certain that at least one or two Churchillians would have guessed correctly that this was part of the film set for "Iceman" starring Timothy Hutton, John Lone and Danny Glover. Released in 1984, portions of the movie were shot in Churchill, including the suitably futuristic Churchill Research (Rocket) Range.

"HE'S 40,000 YEARS OLD. Deep within an Arctic glacier they found him, preserved by a miracle of nature, brought back to life by a miracle of science. Now medical science wants to exploit him in the name of research. One man wants to stop them...in the name of humanity. But he'll need more than a miracle to survive...he'll need a friend."
- Taken from the movie poster, I'm serious...

THIS NEW CHALLENGE

RESEARCH IN ACTION

A Biodiversity Study of muscid and fanniid flies of Churchill, Manitoba

BY
ANAÏS RENAUD[1]
AND JADE SAVAGE[2]

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What better place to study insects than Churchill, Manitoba? This summer brought not only the usual hordes of insects, but insect-catchers, too! Anaïs Renaud, a master's student from the Department of Entomology at the University of Manitoba, spent 12 weeks this summer exploring the biodiversity of two species of "true" flies in the Churchill area.

Muscidae and Fanniidae are two sister families of Diptera distributed worldwide. Muscid flies are a dominant group of Diptera in the tundra and their diversity increases in northern regions. The muscid and fanniid fauna of the Churchill area has not been studied since Huckett's inventory of Northern muscids in 1965. As climatic conditions of most northern localities have changed over the last four decades, we expect that the muscid composition of the Churchill area has also changed.

TRUE FLIES ARE INSECTS OF THE ORDER DIPTERA (GREEK DI = TWO AND PTERON = WING) POSSESSING ONE PAIR OF WINGS ON THE CENTRE OF THE BODY AND A MODIFIED HIND-WING THAT RESEMBLES A KNOB-LIKE PROTRUSION FROM THE BODY. THE COMMON HOUSEFLY IS A TRUE FLY AND ONE OF THE MOST WIDELY DISTRIBUTED ANIMALS.

This biodiversity study aims to provide an inventory of the muscid and fanniid flies of Churchill. By this explicit census, our ultimate goal is to determine if the species composition has changed in the Churchill region since the publication of Huckett's memoir. We will also determine any change in the relative abundance of each species. As a second objective, we intend to contribute DNA sequences of all recorded species to the database associated with the Polar Barcode of life initiative (PolarBol). The reason for the PolarBol project is to build a worldwide database in which we will find the DNA sequence of every arctic species. After taxonomic identification, the specimens collected will be sent to the University of Guelph for DNA identification.

This research project took place this summer over twelve weeks from June 12th to August 28th 2007. Specimens were collected in the area of Churchill, Wapusk National Park and Prince of Wales National Historic Site. Three methods were used to collect: Malaise traps, pan traps and hand nets. A Malaise trap has a tent-like shape with a bottle fixed on top. Dry material is often easier to mount but wet material is better suited for DNA extraction. A pan trap is a small bowl placed on the ground to capture low flying insects. Traps were set up at 11 different sites and visits were made two times a week to remove collected specimens.

All flies captured were either pinned the same day (dry material) or kept in vials of alcohol (wet materials). Back at the University of Manitoba, specimens will be identified using the most recently published identification keys and the right foreleg of a few members of each species will be sent to the genetic bank of the PolarBol. The mitochondrial DNA sequences (Cytochrome c oxidase I) will then be used to test the species limits of each taxa. They will also allow us to assign females to the proper species, as many muscid females can't be identified based on appearance alone. Once our species list is complete, we will compare it with the list of species found by Huckett in 1965.

Under current trends of global warming, the climate Canada is changing rapidly, especially in arctic regions where temperature has risen twice as quickly as other areas. Since temperature is one of the most important factors affecting insect distribution, we expect those distributions to shift northward in response to recent warming trends.

By comparing species collected 40 years ago with those found today, this study will provide more information on the effects of climate and habitat changes on muscid fly biodiversity. By sending our species to the genetic bank of the PolarBol, we will help other dipterists to enhance the accuracy and speed of fly identification in their own studies. It may also allow us to discover cryptic species overlooked so far.

• Anaïs was a recipient of a Northern Research Internship Program grant from the Natural Sciences and Engineering Research Council of Canada. She also took some time to work with local children. We'll save the pictures of her dressed as a butterfly for the next issue...

fun

WHAT: Relay race into the frigid waters of Hudson Bay to celebrate Canada Day.
WHERE: The Town Beach in Churchill
WHEN: Sunday July 1, 2007 at 9:17 a.m.
WHY: We are not quite sure...

The Churchill Northern Studies Centre celebrated Canada Day 2007 with 8 entries into the Annual Churchill *"Polar Bay Dip"*. Each team was deep in training the night before and day dawned sunny and warm! With not a cloud in the sky and the beluga whales playfully swimming on the horizon, the teams charged and flailed their way to victory! The CNSC won first place for the relay race and for best costume (Hawaii-on-the-Hudson theme) and I am sure we shall never hear the end of it!

The Polar Bay Dip Winners:

The Foam Dobies 1st Place (Race)
(L-R) Kyle Swyzen, Patrick Mojhedi, Erica Hille, and Robert Whitten

The Hudson Bay Hootchie Mama's
1st Place (Best Dressed Team) and also the Dip (singers and dancers)
(L-R) Heather MacLeod, Jodi Wilson-Vinge, and Freyja Forsyth
Front) Katrina James

Photos: Ryan Pickrell

Volunteer Spirit from **Across The Pond**

Photo: Freyja Forsyth

After the incredibly warm welcome I received here at the CNSC, I fell into the hustle and bustle of research quite quickly. I think it's that busy atmosphere that makes this place a home away from home, though. I was conscious at first of the difference it would be but that fades to a distant memory. I remember the first night I spent looking for the northern lights when a hare came bounding along. I'm sure I thought it was a polar bear and my life flashed before my eyes.

I have been made an honorary member of a unique family. When my university told me to do a six week work placement I had no clue it could be so much fun and yet an education in itself. I think this will greatly affect my studies back in England, as seeing a different perspective on global warming and where it's affecting the landscape visually is such an experience. I can honestly say no one back home can even imagine what a delight it is here in Churchill. This was also a new encounter with science that I had not seen before. As a conservation and environment student, we don't have a strong emphasis on greenhouse gas emissions research (unfortunately).

The kind of on-hand experience I shall take back will be invaluable to my further education and what a thing to put on your CV! The number of projects going on here is overwhelming and just listening in the cafeteria for twenty minutes is more educational than an hour lecture back home. Now that I've experienced northern environments I hope to go back and continue my interest in them and hopefully follow in the footsteps of those around me by returning for future projects. This is such a unique environment, too. Not only am I fulfilling the requirements of my course - I was exceeding them by seeing three different ecosystems which have rapidly changing ecology.

After doing gas sampling day in and day out, I have an overwhelming respect for people who do this everyday for many a year. But there has been such compensation; like the polar bears and the northern lights, for all the times I have fallen in the fen (and there have been many). This could be the most beautiful place on our planet.

Becci volunteered at the Centre from mid-August to late-September and assisted with various research projects. The arctic hares can be thankful we don't let volunteers carry firearms.

For more information on how you can volunteer at the CNSC, contact Heather at: **cnsc@churchillscience.ca**

NOTES

2008 CNSC Learning Vacations

- Our new 2008 CNSC Learning Vacation course brochure is now available! Visit **www.churchillscience.ca** to learn more about the exciting educational opportunities available at the Churchill Northern Studies Centre.
- The new 2008 fee schedule for researchers, school groups, and university credit courses has been posted. Visit **www.churchillscience.ca/index.php?page=re_fees** for more details.
- CNSC short-sleeved polar bear logo T-shirts in a wide array of colors and sizes are now available by mail order for $18.60 CDN. Members in good standing save 15%. Please contact Dianne Howell at **howell@churchillscience.ca** or call **(204) 675-2037** to order yours today.

Cooks' Corner

By Audrey Chislett

SERVES 30 or more hard working researchers.
You may want to reduce the recipe for your family...

3/4 cup butter or margarine
2 TBSP minced onion
1 1/4 cup flour
20 cups water
8 TBSP chicken soup base
Pinch of salt and pepper
1/2 can evaporated milk

Combine butter, minced onion, and flour. Add 20 cups water and whisk over low heat until mixture starts to simmer and is smooth. Add chicken soup base, salt and pepper.

Depending on desired variety of soup, cook and puree carrots, squash, celery, turnip or cooked chicken (cubed, not pureed) and add to cream base. Simmer for a few minutes and add 1/2 can of evaporated milk or cream. Keep hot, but do not allow to boil. Sprinkle with parsley. Makes one large pot of delicious soup.

• Audrey has been a cook with the Churchill Northern Studies Centre since 2003 and was recently responsible for one researcher gaining 10 lbs during a thirty day field season. Good thing he didn't stay all summer.

Established in 1976, the Churchill Northern Studies Centre is an independant, non-profit research station located along the western coast of Hudson's Bay.

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to understand and sustain the **north**

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Membership

Helping the CNSC – CanadaHelps.org

Help us cut administrative and credit card fees by donating through **CanadaHelps.org**. Each time you donate online through **CanadaHelps.org**, the CNSC saves 3% or more off regular credit card processing fees and an electronic Canadian tax receipt will automatically be sent directly to you. If you want to make the most of your donation by helping the CNSC and Canada's charities, simply go to **www.churchillscience.ca** and click the **"Donate Now"** button.

Photo: Ken Blackshaw

Gift Memberships

Share the world of northern research and education with your family, friends, and colleagues. Do you know someone who has northern interests but does not have access to the North? Giving a CNSC Gift Membership allows you to bring someone closer to the North. Membership benefits include staying up to date on research and events at the CNSC through *The Birdfish* newsletter and discounts on our year-round educational programs. We will also be promoting featured CNSC products from our giftshop at discounted prices to our members. **Don't hesitate, sign-up someone close to you for their gift membership today.** Each gift membership will receive a birdfish pin, *The Birdfish*, and a special blank note card for you to send to the recipient and a note from CNSC staff welcoming them as a member of our northern community. Just check the gift membership line below, fill in the recipient's contact information and mail it today. That special someone will be glad you did.

• Kim is the CNSC Special Projects Assistant in charge of our membership database. She would rather get a lump of coal in her stocking this Christmas. I'm serious – it takes a lot of wood to keep her cabin warm!